$$\sin(\mu-\nu)\sin\delta\sin\nu\sin\lambda\sin\gamma d\theta d\varphi d\psi d\mu d\delta d\nu d\lambda d\gamma$$

$$=\frac{8}{\pi^2}\int_0^{\frac{1}{2}\pi}\int_0^{\frac{1}{2}\pi}\int_0^{\pi}\int_0^{\pi}\int_0^{\psi}\int_0^{\mu}\int_0^{\pi}\sin^4\theta\sin^4\varphi\sin\psi\sin\mu\sin(\psi-\delta)\sin(\mu-\nu)$$

$$\sin\delta\sin\nu\sin\lambda d\theta d\varphi d\psi d\mu d\delta d\nu d\lambda$$

$$=\frac{16}{\pi^2}\int_0^{\frac{1}{2}\pi}\int_0^{\frac{1}{2}\pi}\int_0^{\pi}\int_0^{\pi}\int_0^{\psi}\int_0^{\mu}\sin^4\theta\sin^4\varphi\sin\psi\sin\mu\sin(\psi-\delta)\sin(\mu-\nu)\sin\delta\sin\nu$$

$$d\theta d\varphi d\psi d\mu d\delta d\nu$$

$$=\frac{8}{\pi^2}\int_0^{\frac{1}{2}\pi}\int_0^{\frac{1}{2}\pi}\int_0^{\pi}\int_0^{\pi}\int_0^{\psi}\sin^4\theta\sin^4\varphi\sin\psi\sin\mu(\sin\mu-\mu\cos\mu)\sin(\psi-\delta)\sin\delta$$

$$d\delta d\varphi d\psi d\mu d\delta$$

$$=\frac{4}{\pi^2}\int_0^{\frac{1}{2}\pi}\int_0^{\frac{1}{2}\pi}\int_0^{\pi}\int_0^{\pi}\sin^4\theta\sin^4\varphi\sin\psi(\sin\psi-\psi\cos\psi)\sin\mu(\sin\mu-\mu\cos\mu)$$

$$d\theta d\varphi d\psi d\mu$$

$$=\frac{3}{\pi}\int_0^{\frac{1}{2}\pi}\int_0^{\frac{1}{2}\pi}\int_0^{\pi}\sin^4\theta\sin^4\varphi\sin\psi(\sin\psi-\psi\cos\psi)d\theta d\varphi d\psi$$

$$=\tfrac{9}{4}\int_0^{\frac{1}{2}\pi}\int_0^{\frac{1}{2}\pi}\sin^4\theta\sin^4\varphi d\theta d\varphi=\frac{27\pi}{64}\int_0^{\frac{1}{2}\pi}\sin^4\theta d\theta=\frac{81\pi^2}{1024}=(\tfrac{3}{4})^4(\tfrac{1}{2}\pi)^2.$$

NOTE. We may publish a second solution of Problem 90 in the next issue of the MONTHLY. ED. F.

PROBLEMS FOR SOLUTION.

ARITHMETIC.

140. Proposed by ALOIS F. KOVARIK, Instructor in Mathematics and Science, Decorah Institute, Decorah, Iowa.

$\frac{1}{7}=0.\dot{1}4285\dot{7}$; $\frac{1}{14}=0.0\dot{7}14285\dot{}$; $\frac{1}{21}=0.00\dot{4}761\dot{9}$. Notice that the sum of the figures in each period is equal to 27. This is not true with $\frac{1}{72}$, $\frac{1}{73}$. Is there any general law of which these are special cases, and if so, what is it?

141. Proposed by F. P. MATZ. M. Sc., Ph. D., Professor of Mathematics and Astronomy in Irving College, Mechanicsburg. Pa.

If the alloy in a half-dollar be 1-13th of the mass, and the coin be worth a cent if it be all alloy, what should be the exact value of the coin if it be all pure silver?

*** Solutions of these problems should be sent to B. F. Finkel not later than April 10.